REMARKS/ARGUMENTS

The claims are 2, 3, 6-15 and 17-34. Claims 15 and 30 have been amended to better define the invention and new claims 31-32 and 33-34, dependent on claims 15 and 30, respectively, have been added. New claims 31 and 33 specify that the second welding process phase is a cold-metal-transfer phase. New claims 32 and 34 contain subject matter previously recited in claims 15 and 30, respectively. Support for the claims may be found, *inter alia*, in the disclosure in the paragraph bridging pages 12-13, FIGS. 5 and 9, and the original claims. Reconsideration is expressly requested.

At the outset, Applicant notes that the Examiner has not formally made of record the Second Supplemental Information Disclosure Statement filed June 3, 2010 citing references in a Japanese Examination Report enclosed therewith, and Applicant respectfully requests that the Examiner formally make such references of record.

Claims 15, 17-20, 23-24 and 28-29 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Jank et al. U.S. Patent No. 6,476,354* in view of *Ueyama et al. U.S. Patent No. 5,508,493*.

Claims 21-22 and 25-27 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Jank et al.* and *Ueyama et al.* in view of *Hsu U.S. Patent No. 6,717,107* (claim 21), *Tanaka et al. U.S. Patent No. 4,100,389* (claims 22 and 25), *Norrish et al. U.S. Patent Application Publication No. 2002/0008095* (claim 26), or *Plottier et al. U.S. Patent No. 6,384,376* (claim 27). Claims 30, 2 and 6-14 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Artelsmair WO 00/64620* in view of *Hsu* and *Ueyama et al.* Claim 3 was rejected under 35 U.S.C. 103(a) as being unpatentable over *Artelsmair, Hsu et al.* and *Ueyama et al.* and further in view of *Norrish et al.*

Essentially the Examiner repeated the rejection made in the December 8, 2009 Office Action, except for citing *Ueyama et al.* as disclosing a ratio of the number of pulses of the first welding process phase to the number of pulses of the second welding process phase being adjusted to adjust or control the heat balance or heat input into the workpiece.

In response, Applicant has amended claims 15 and 30 to better define the invention and respectfully traverses the Examiner's rejection for the following reasons.

As set forth in claims 15 and 30 as amended, Applicant's invention provides a welding device and a method for controlling or adjusting a welding process using a melting electrode, wherein different welding process phases like a pulse current phase with a cold-metal-transfer phase, a short arc welding phase with a cold-metal-transfer phase, a pulse current phase with a spray arc welding phase, and a pulse current phase with a short arc welding phase, and so on are combined. See the paragraph bridging pages 12-13 of Applicant's disclosure. With Applicant's device and method, there is a cyclic change of different welding process phases that are time periods where different welding processes are combined. These welding processes differ from each other by the energy input and the material transition. For instance, the material transition of a pulse current process is characterized by a falling drop of the melted welding material, whereas during a cold-metal-transfer welding process the droplet of the welding material is immersed into the melt bath and the welding wire is moved rearwards so that the droplet is detached from the welding wire as can be seen from FIGS. 5 and 9 of Applicant's disclosure, for instance. During a spray arc welding phase an uncontrolled falling down of the droplets of the melted welding material takes place.

It is respectfully submitted that none of the cited references discloses or suggests a welding device or method for controlling or adjusting a welding process, wherein the first welding process phase has a high input and a first material transition and the second welding process phase has a low energy input and a second material transition different from the first material transition, wherein the first welding process phase has a high energy input phase and a base energy phase and the second welding process has a short circuit phase that starts during the base energy phase and wherein the heat balance or heat input into the workpiece to be worked is adjusted via a cyclic combination of at least the first welding process phase and the second welding process phase.

New claims 32 and 34 further specify the feature that the high energy input phase is a high current phase, the base energy phase is a base current phase, and a ratio of the number of pulses of the first welding process phase to the number of the second welding process phase is adjusted to adjust or control the heat balance or heat input into the workpiece. Although the Examiner cites FIG. 97 of *Ueyama et al.* as disclosing this feature, it is respectfully submitted that the Examiner's position is unfounded. FIG. 97 of *Ueyama et al.* shows the wave form of the output current

of a welding apparatus indicating the realization of a pulse welding process. During a first time period T_1, pulses with a pulse duration TP_1 are repeated with a first frequency f_{31}. During a second time period T_2, the pulses with the pulse duration TP_1 are repeated with another frequency f_{32}. Therefore, during the first time period T_1 three pulses and during the second time period T_2 four pulses can be seen. *Ueyama et al.*, however, shows only one welding process with different parameters during the time periods T_1 and T_2. *Ueyama et al.* fails to disclose or suggest a combination of two different welding process phases, namely a welding process phase having a low energy input and a welding process phase having a high energy input.

Accordingly, it is respectfully submitted that claims 15 and 30 as amended, together with claims 2-3, 6-14 and 33-34 which depend on claim 30 as amended and claims 17-29 and 31-32 which depend directly or indirectly on claim 15 as amended, are patentable over the cited references.

In summary, claims 15 and 30 have been amended and new claims 31-34 have been added. A check in the amount of $52.00 is enclosed in payment of the excess claim fee for one (1) additional dependent claim in excess of twenty-nine (29) previously paid for. In view of the foregoing, it is respectfully requested that the claims be allowed and that this application be passed to issue.

Respectfully submitted,
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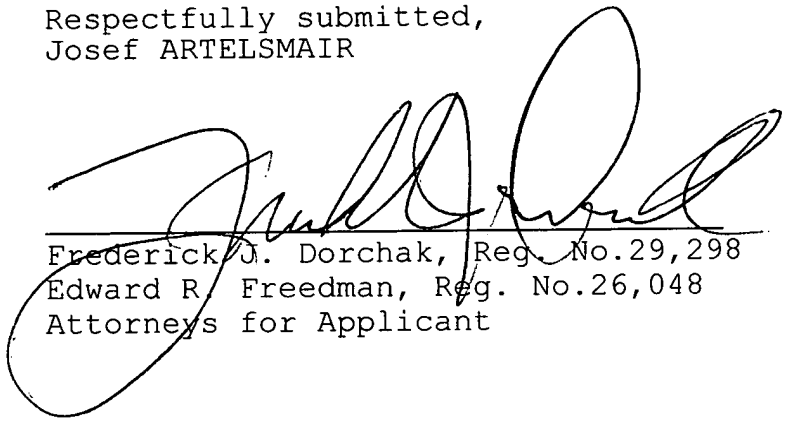

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Enclosure:
Check in the amount of $52.00

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Amy Klein

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